TABORS CARAMANIS AND ASSOCIATES

November 14, 2000

Mr. Randel Pilo
Chief Economist
Electric Division
Public Service Commission of Wisconsin
610 N. Whitney Way
PO Box 7854
Madison, WI 53707-7854

RE: Revisions to the report on Horizontal Market Power in Wisconsin Electricity Markets

Dear Mr. Pilo:

As we discussed during our telephone conversation on Friday November 10, 2000, the energy prices reported in Table 2.3 *Baseline Market Simulation: Average Annual Perfect Competition Price* need to be revised to be consistent with the capacity prices reported in that table. The energy and capacity prices reported in the revised Table 2.3 are taken from a baseline market simulation prepared using a cap of $1,000/MWh. These prices are used to calculate the impacts on stakeholders presented in Section 5.0 of the report.

The energy prices reported in the revised Table 2.3 are higher than those reported in the original version of that table. The revision of Table 2.3 in turn requires revisions to Tables 4.1 *a* and *b*, Tables 4.7 *a* and *b*, Table 5.2, Section 5.1.2, as well as Figures 5.1, 5.2 and 5.3. Attached are new pages reflecting these revisions. We will provide a complete report incorporating these revisions shortly.

This revision does **not** affect any of the report's conclusions or recommendations.

We apologize for any inconvenience this may have caused.

Yours truly,

Alex Rudkevich
Senior Associate

T C A

50 Church Street, Cambridge, Massachusetts 02138 • 617-354-5304 • fax: 617-354-5882

2.4 Market Power Analysis Methodology: Tables

Table 2.1: Baseline Market Simulation: Average Competitive Market Prices for 2001[a]				
Time Period	WEPCO	WP&L	WPSC	MGE
Ave SuperPeak Price Winter	$78.28	$110.25	$67.28	$114.63
Ave Peak Price Winter	$30.59	$34.40	$28.47	$35.43
Ave OffPeak Price Winter	$14.45	$16.26	$13.63	$17.83
Ave SuperPeak Price Summer	$81.14	$83.29	$68.18	$95.79
Ave Peak Price Summer	$63.95	$57.48	$51.55	$78.62
Ave OffPeak Price Summer	$21.92	$23.17	$18.26	$23.24
Ave SuperPeak Price Shoulder	$33.19	$30.41	$30.29	$42.65
Ave Peak Price Shoulder	$25.20	$23.59	$22.25	$24.93
Ave OffPeak Price Shoulder	$14.32	$15.55	$13.22	$17.29

Table 2.2: Baseline Market Simulation: Average Competitive Market Prices for 2007[a]				
Time Period	WEPCO	WP&L	WPSC	MGE
Ave SuperPeak Price Winter	$39.65	$35.68	$51.04	$68.45
Ave Peak Price Winter	$31.19	$31.93	$23.64	$33.53
Ave OffPeak Price Winter	$15.44	$17.18	$12.76	$17.68
Ave SuperPeak Price Summer	$54.29	$43.84	$47.56	$57.19
Ave Peak Price Summer	$40.81	$37.74	$30.51	$43.92
Ave OffPeak Price Summer	$21.95	$22.27	$18.01	$22.41
Ave SuperPeak Price Shoulder	$34.39	$29.48	$30.34	$35.58
Ave Peak Price Shoulder	$26.57	$24.95	$21.64	$27.27
Ave OffPeak Price Shoulder	$15.07	$17.43	$12.98	$16.46

Table 2.3 Baseline Market Simulations: Price Summary[b] (Revised 11/14/2000)						
	WUMS			MAPP		
Year	Energy Price ($/MWh)	Capacity Price ($/MWh)	Wholesale Price ($/MWh)	Energy Price ($/MWh)	Capacity Price ($/MWh)	Wholesale Price ($/MWh)
2001	$34.75	$0.00	$34.75	$20.03	$2.63	$22.66
2002	$30.07	$0.36	$30.43	$21.20	$2.91	$24.10
2003	$27.77	$0.02	$27.79	$19.30	$6.54	$25.84
2004	$24.59	$1.11	$25.71	$19.82	$5.90	$25.72
2005	$24.67	$1.45	$26.12	$20.18	$5.00	$25.18
2006	$25.30	$0.84	$26.14	$20.39	$1.71	$22.10
2007	$29.55	$1.44	$30.98	$24.16	$6.51	$30.66
Annual Prices are a weighted average by load						
Prices are in 1999 $'s						

[a]The energy prices reported in Tables 2.1 and Table 2.2 are from a baseline market simulation prepared using a cap of $300/MWh. These prices are used to prepare the structural analysis presented in Section 3.0 of the report. This cap prevents extreme values in a few hours from distorting the average prices used to define product markets.

[b]The energy and capacity prices reported in Table 2.3 are from a baseline market simulation prepared using a cap of $1,000/MWh. These prices are used to calculate the impacts on stakeholders presented in Section 5.0 of the report. This cap allows the simulation to produce prices representative of a market operating without constraints.

4.7 The Behavioral Analysis: Tables

Table 4.1*a*: Market Power Impact on Wholesale Prices: Base Case Scenario-WUMS (Revised 11/14/2000)			
Year	Perfect Competition ($/MWh)	Strategic Bidding and Capacity Withholding ($/MWh)	PCMI (Strategic Bid. And Capacity Withholding)
2001	$34.75	$55.74	60.4%
2002	$30.43	$46.60	53.1%
2003	$27.79	$39.63	42.6%
2004	$25.71	$29.91	16.4%
2005	$26.12	$30.54	16.9%
2006	$26.14	$29.71	13.7%
2007	$30.98	$36.59	18.1%

Table 4.1*b*: Market Power Impact on Wholesale Prices: Base Case Scenario-MAPP (Revised 11/14/2000)			
Year	Perfect Competition ($/MWh)	Strategic Bidding and Capacity Withholding ($/MWh)	PCMI (Strategic Bid. And Capacity Withholding)
2001	$22.66	$24.05	6.2%
2002	$24.10	$25.70	6.6%
2003	$25.84	$27.35	5.8%
2004	$25.72	$27.17	5.7%
2005	$25.18	$26.64	5.8%
2006	$22.10	$23.76	7.5%
2007	$30.66	$32.75	6.8%

Table 4.2: Impact of Market Power on System-wide Generation, Cost, and Revenues			
Year	% Increase in Generation	% Increase in Generating Cost	% Increase in Revenues
2001	-5.4%	-6.1%	53.8%
2003	-3.8%	-3.2%	38.7%
2005	-1.6%	-0.8%	16.7%
2007	-1.7%	-1.0%	17.3%

Table 4.7*a*: Market Power Impact on Wholesale Prices: Contracts and Divestiture Scenario- WUMS (Revised 11/14/2000)			
Year	Perfect Competition ($/MWh)	Strategic Bidding and Capacity Withholding ($/MWh)	PCMI (Strategic Bid. And Capacity Withholding)
2001	$34.75	$35.74	2.9%
2002	$30.43	$31.22	2.6%
2003	$27.79	$28.47	2.4%
2004	$25.71	$26.21	2.0%
2005	$26.12	$26.59	1.8%
2006	$26.14	$26.52	1.5%
2007	$30.98	$31.53	1.8%

Table 4.7*b*: Market Power Impact on Wholesale Prices: Contracts and Divestiture Scenario- MAPP (Revised 11/14/2000)			
Year	Perfect Competition ($/MWh)	Strategic Bidding and Capacity Withholding ($/MWh)	PCMI (Strategic Bid. And Capacity Withholding)
2001	$22.66	$23.55	3.9%
2002	$24.10	$25.42	5.5%
2003	$25.84	$26.85	3.9%
2004	$25.72	$26.80	4.2%
2005	$25.18	$26.25	4.3%
2006	$22.10	$23.41	5.9%
2007	$30.66	$32.30	5.3%

Table 5.2: Average Annual Cost of Electricity to Load Serving Entities (cents/kwh 1999$)
(Revised 11/14/2000)

	WUMS				MAPP	
	Base Case	**Contracts Case**	**Divestiture**	**Contracts & Divestiture**	**Base Case**	**Contracts & Divestiture**
2001	5.57	3.47	3.69	3.47	2.41	2.27
2002	2.97	3.04	3.20	3.04	2.57	2.41
2003	3.66	2.78	2.90	2.78	2.73	2.58
2004	2.99	2.57	2.65	2.57	2.72	2.57
2005	3.05	2.61	2.69	2.61	2.66	2.52
2006	2.97	2.61	2.72	2.61	2.38	2.21
2007	3.66	3.10	3.19	3.10	3.28	3.07

5.1.2 Results

As shown in Table 5.2, the mitigation measures modeled in the study result in lower unit revenues by rate class than in the Base Case. The estimates of unit revenues for the residential, commercial and industrial rate classes in 2001 under each of the cases are presented in Figures 5.1 through 5.3 respectively. These results also indicate that the rates under the mitigation cases could be lower in some utility service territories than the rates paid by customers in 1998.

5.2 Impact on Stranded Costs (Benefits)

The study assessed the impact of mitigation measures on public utility shareholders and electric cooperative members by estimating the impact of those measures on stranded costs. Stranded costs are embedded costs of utility investments that exceed market prices, exceed the amount that can be recovered through the sales of the assets underlying those costs and may not be fully recoverable from ratepayers after the assets are sold or divested. Thus, stranded costs equal the difference between the market value of the assets and their book value. Stranded costs that are not fully recoverable from ratepayers represent an adverse financial impact from the perspective of utility shareholders and cooperative members. In contrast, if stranded costs are negative they represent a positive impact or benefit from the perspective of utility shareholders and cooperative members.

5.4 Impacts on Stakeholders: Figures

Figure 5.1: Unit Revenues - Residential (Revised 11/14/2000)

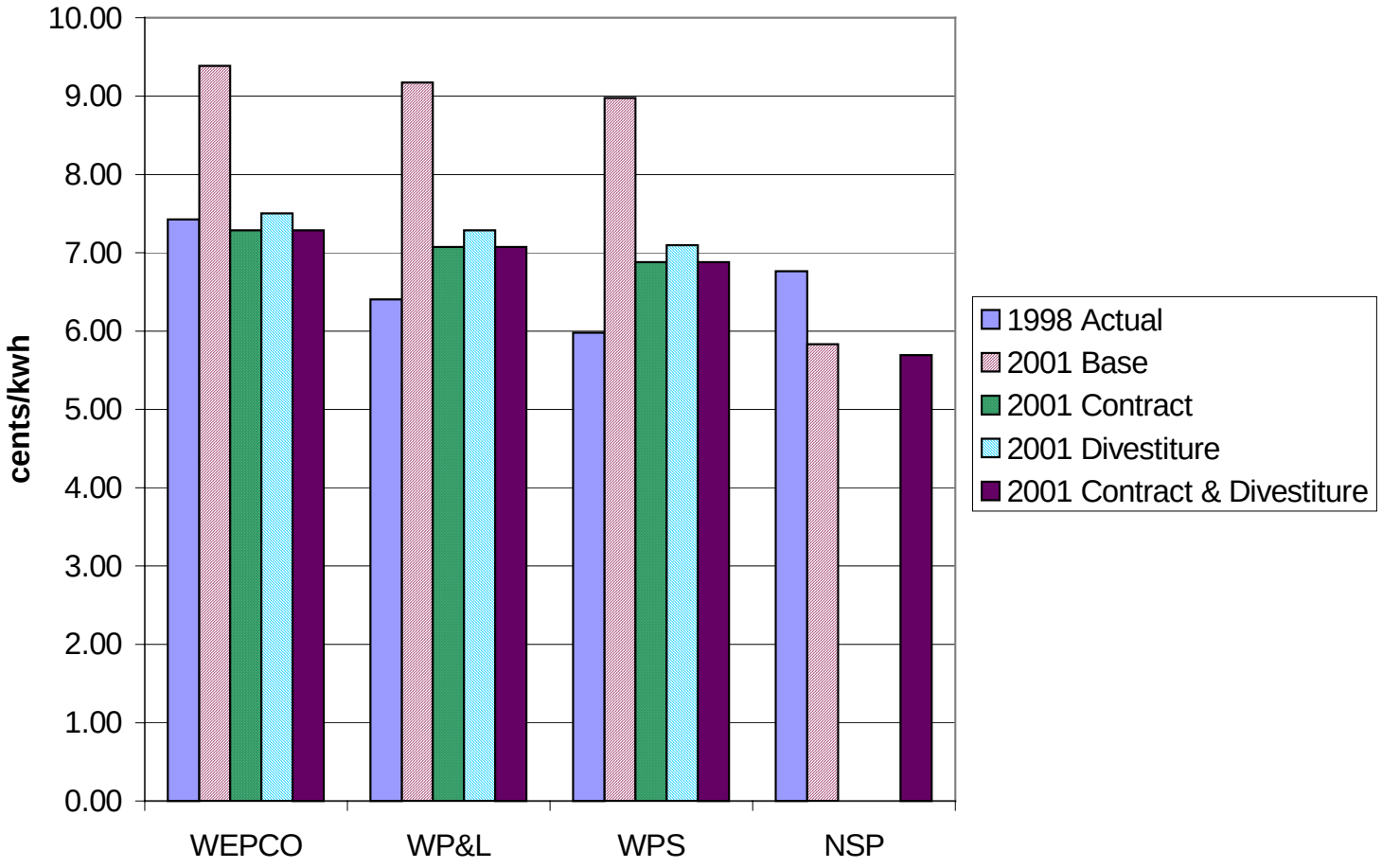

Figure 5.2: Unit Revenues - Commercial (Revised 11/14/2000)

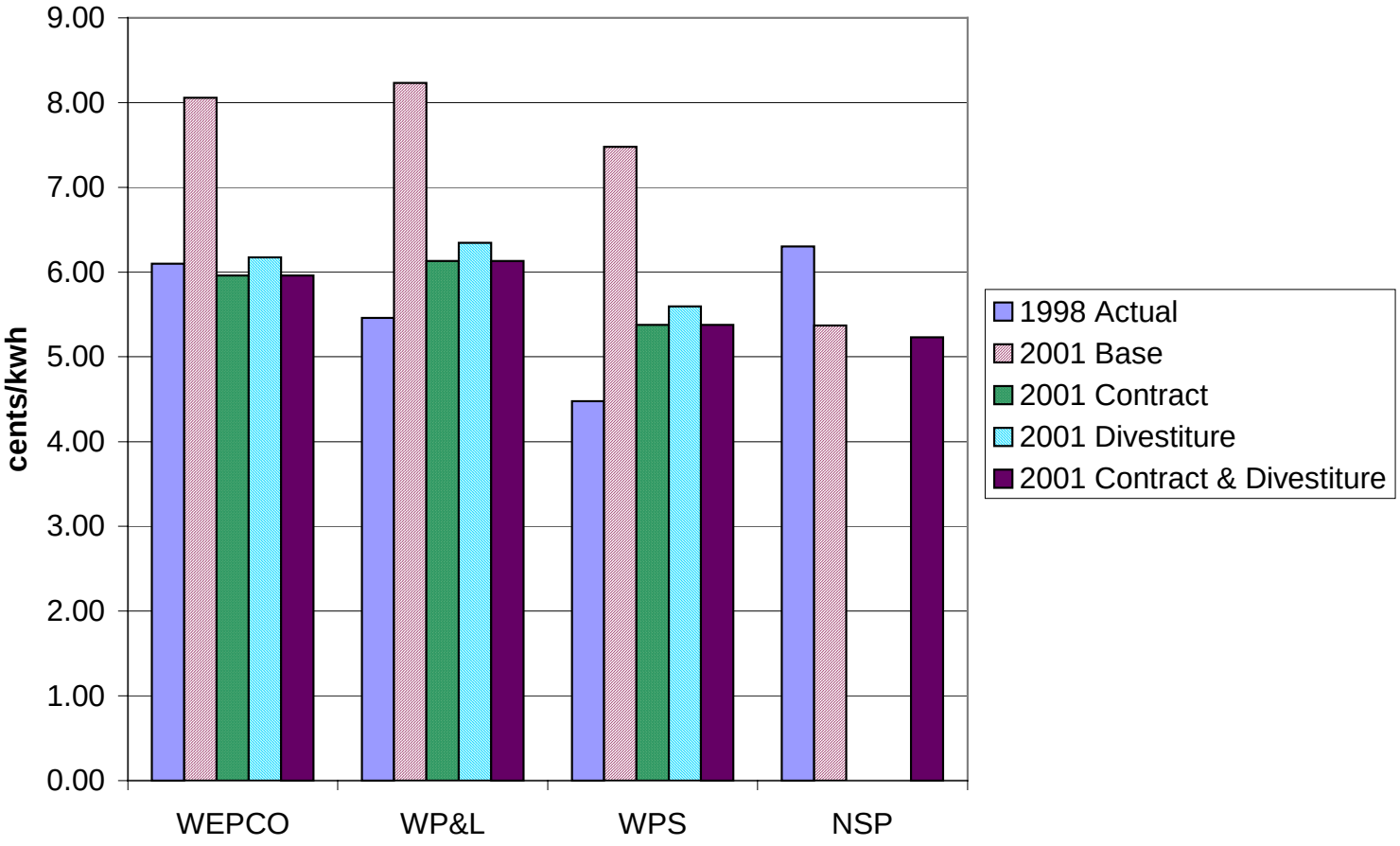

Figure 5.3: Unit Revenues - Industrial (Revised 11/14/2000)